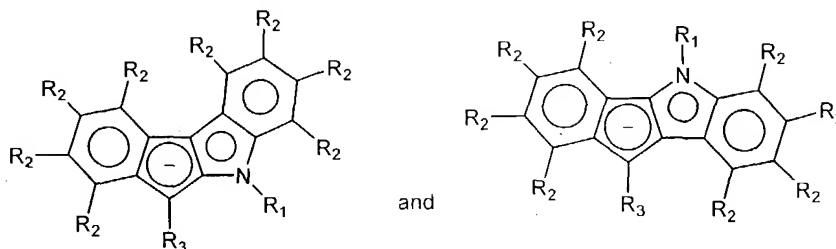


I claim:

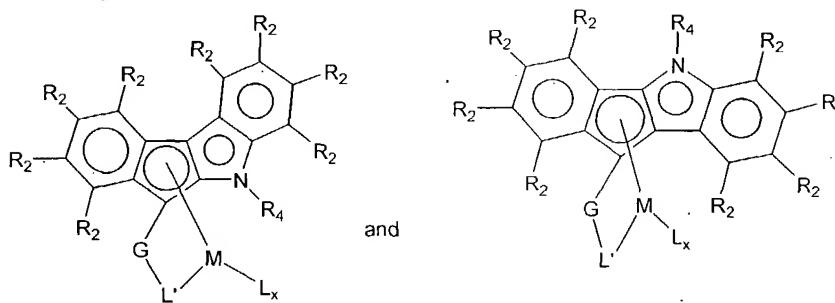
1. A process which comprises polymerizing an olefin in the presence of an activator and a supported organometallic complex, wherein the supported organometallic complex is prepared by treating a support with an organozinc compound and combining the organozinc-treated support with an organometallic complex comprising a Group 3 to 10 transition metal, M, and at least one indenoidolyl ligand that is bonded to M.
2. The process of claim 1 wherein the Group 3 to 10 transition metal is a Group 4 transition metal.
3. The process of claim 1 wherein the activator is selected from the group consisting of alumoxanes, alkylaluminum compounds, organoboranes, ionic borates, ionic aluminates, aluminoboronates and mixtures thereof.
4. The process of claim 1 wherein some or all of the activator is premixed with the organometallic complex, and this mixture is added to the organozinc-treated support.
5. The process of claim 1 wherein the olefin is selected from the group consisting of ethylene, propylene, 1-butene, 1-pentene, 1-hexene and 1-octene and mixtures thereof.
6. The process of claim 5 wherein the olefin is ethylene in combination with a second olefin selected from the group consisting of 1-butene, 1-hexene and 1-octene.
7. The process of claim 1 wherein the support has been treated with about 0.1 to about 2 moles of organozinc compound per kg support.
8. The process of claim 1 wherein the organozinc compound is selected from the group consisting of dimethylzinc and diethylzinc.
9. The process of claim 1 wherein the support is selected from the group consisting of silicas, aluminas, and silica-aluminas.
10. The process of claim 1 wherein the polymerization is performed at a temperature within the range of about 30°C to about 100°C.
11. A slurry polymerization process of claim 1.
12. A gas-phase polymerization process of claim 1.

13. The process of claim 1 wherein the indenoindolyl ligand has a structure selected from the group consisting of:



in which R_1 is selected from the group consisting of C_1 - C_{30} hydrocarbyl, dialkylboryl, trialkylsilyl and divalent radicals connected to a second ligand; each R_2 is independently selected from the group consisting of C_1 - C_{30} hydrocarbyl, H, F, Cl and Br; R_3 is selected from the group consisting of C_1 - C_{30} hydrocarbyl, H and divalent radicals connected to a second ligand wherein one of R_1 or R_3 is a divalent radical selected from the group consisting of hydrocarbyl and heteroatom containing alkylene radicals, diorganosilyl radicals, diorganogermanium radicals and diorganotin radicals.

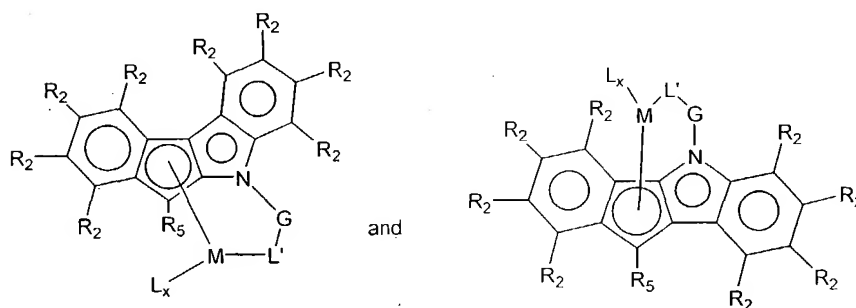
14. The process of claim 1 wherein the organometallic complex has a structure selected from the group consisting of:



wherein M is a Group 3 to 10 transition metal; each L is independently selected from the group consisting of halide, alkoxy, aryloxy, siloxy, alkylamino, and C_1 - C_{30} hydrocarbyl; L' is selected from the group consisting of alkylamido, substituted or unsubstituted cyclopentadienyl, fluorenyl, indenyl, boraaryl, pyrrolyl, azaboroliny and indenoindolyl; x satisfies the valence of M; R_4 is

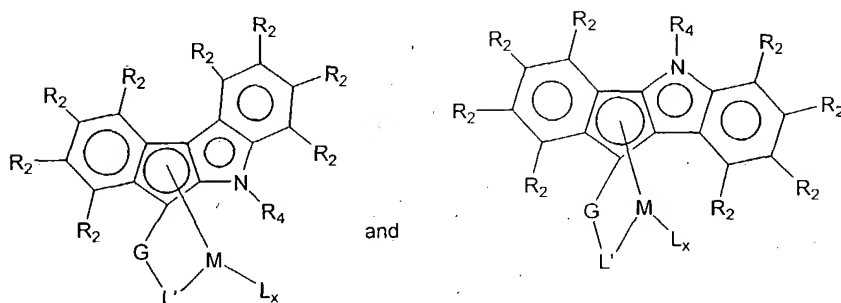
selected from the group consisting of C₁-C₃₀ hydrocarbyl, dialkylboryl and trialkylsilyl; each R₂ is independently selected from the group consisting of C₁-C₃₀ hydrocarbyl, H, F, Cl and Br; G is a divalent radical selected from the group consisting of hydrocarbyl and heteroatom containing alkylene radicals, diorganosilyl radicals, diorganogermanium radicals and diorganotin radicals.

15. The process of claim 14 wherein L' is selected from the group consisting of substituted or unsubstituted cyclopentadienyl, fluorenyl, indenyl, and indenoindolyl.
16. The process of claim 1 wherein the organometallic complex has a structure selected from the group consisting of:



wherein M is a Group 3 to 10 transition metal; each L is independently selected from the group consisting of halide, alkoxy, aryloxy, siloxy, alkylamino, and C₁-C₃₀ hydrocarbyl; L' is selected from the group consisting of alkylamido, substituted or unsubstituted cyclopentadienyl, fluorenyl, indenyl, boraaryl, pyrrolyl, azaboroliny and indenoindolyl; x satisfies the valence of M; R₅ is selected from the group consisting of C₁-C₃₀ hydrocarbyl and H; ; each R₂ is independently selected from the group consisting of R₅, F, Cl and Br; G is a divalent radical selected from the group consisting of hydrocarbyl and heteroatom containing alkylene radicals, diorganosilyl radicals, diorganogermanium radicals and diorganotin radicals.

17. A method which comprises treating a support with an organozinc compound and combining the treated support with an organometallic complex comprising a Group 3 to 10 transition metal, M, and at least one indenoindolyl ligand that is bonded to M.
18. The method of claim 17 wherein the support is selected from the group consisting of silicas, aluminas, and silica-aluminas.
19. The method of claim 17 wherein the organozinc compound is selected from the group consisting of dimethylzinc and diethylzinc.
20. The method of claim 17 wherein the organometallic complex has a structure selected from the group consisting of:



wherein M is a Group 4 transition metal; each L is independently selected from the group consisting of halide, alkoxy, aryloxy, siloxy, alkylamino, and C₁-C₃₀ hydrocarbyl; L' is selected from the group consisting of alkylamido, substituted or unsubstituted cyclopentadienyl, fluorenyl, indenyl, boraaryl, pyrrolyl, azaborolinyl and indenoindolyl; x satisfies the valence of M; R₄ is selected from the group consisting of C₁-C₃₀ hydrocarbyl, dialkylboryl and trialkylsilyl; each R₂ is independently selected from the group consisting of C₁-C₃₀ hydrocarbyl, H, F, Cl and Br; G is a divalent radical selected from the group consisting of hydrocarbyl and heteroatom containing alkylene radicals, diorganosilyl radicals, diorganogermanium radicals and diorganotin radicals.

21. The method of claim 17 wherein the complex is premixed with an activator prior to combining with the organozinc-treated support.
22. The method of claim 17 wherein the organozinc-treated support is combined with an activator prior to combining with the organometallic complex.